

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) An information recording/reproducing apparatus that performs reading and writing of information with respect to an information recording medium in which user data areas and alternative areas are alternately arranged, said apparatus comprising:

a device for reading and writing the information; and

means for assigning, when an error occurs in a certify process or a verify process with respect to one of the user data areas and an alternative destination is to be assigned, in the case where an unused field does not exist in the alternative area corresponding to the user data area in which the error occurs, the alternative destination in another alternative area on which the certify process or the verify process is performed,

wherein each user data area is preceded by a corresponding adjacent alternative area.

2. (Original) The information recording/reproducing apparatus as claimed in claim 1, further comprising:

means for performing, when the error occurs in the certify process or the verify process and the alternative destination is to be assigned, in the case where the certify process and the verify process are not performed on the alternative area having the alternative destination, the certify process and the verify process on the alternative area having the alternative destination; and

means for assigning, when an error occurs in the certify process or the verify process performed by said means for performing the certify process and the verify process, the alternative destination in an alternative area other than the alternative area in which the error occurs.

3. (Original) The information recording/reproducing apparatus as claimed in claim 1, further comprising:

means for performing the certify process and the verify process on the alternative area first before the user data area; and

means for registering, as a position the use of which is prohibited, a position in the alternative area at which position an error occurs in the certify process or the verify process performed by means for performing the certify process and the verify process.

4. (Original) The information recording/reproducing apparatus as claimed in claim 1, further comprising:

means for maintaining a position at which the error occurs when the certify process or the verify process is performed on the one of the user data areas; and

means for assigning, after the certify process and the verify process are performed on the alternative area, the alternative destination with respect to the user data area having the maintained position.

5. (Currently Amended) An information recording/reproducing apparatus that performs recording and reproducing of information with respect to a recording medium having a plurality of user data areas for recording user data therein and a plurality of alternative areas corresponding to the respective user data areas and each having an alternative field for replacing a defect field in the user data areas, said apparatus comprising:

a defect field detection part that detects a defect field at the time of a format process or recording of information;

a first usable field determination part that determines whether an alternative field allowing replacement exists in the alternative area corresponding to the user data area having the defect field detected by said defect field detection part; and

a first alternative field assigning part that assigns, when said first usable field determination part determines that the alternative field does not exist, as an alternative field for the defect field, an alternative field allowing replacement in another alternative area to which the format process is performed,

wherein each user data area is preceded by a corresponding adjacent alternative area.

6. (Original) The information recording/reproducing apparatus as claimed in claim 5, further comprising:

a formatted alternative area determination part that determines whether an alternative area exists on which the format process is performed;

a second alternative field assigning part that assigns, when said formatted alternative area determination part determines that an alternative area does not exist on which area the format process is performed, a predetermined alternative field in an alternative area on which the format process is not performed as an alternative field for the defect field; and

an alternative field format process part that performs the format process on the alternative field assigned by said second alternative field assigning part.

7. (Original) The information recording/reproducing apparatus as claimed in claim 6, further comprising:

a use prohibition part that, when the defect detection part detects an alternative field on which the format process is performed by the alternative field format process part as a defect field, prohibits use of the defect field, wherein the second alternative field assigning part assigns, as an alternative field for the defect field, another alternative field in the alternative area including the alternative field the use of which is prohibited by said use prohibition part.

8. (Original) The information recording/reproducing apparatus as claimed in claim 6, further comprising:

a second usable field determination part that determines, when the formatted alternative area determination part determines that an alternative area exists on which the format process is performed, whether an alternative field

allowing replacement exists in the alternative area on which the format process is performed,

wherein, when the second usable field determination part determines that an alternative field allowing replacement does not exist, the second alternative field assigning part assigns, as an alternative field for the defect field, a predetermined field in an alternative area on which the format process is not performed.

9. (Original) The information recording/reproducing apparatus as claimed in claim 7, further comprising:

a second usable field determination part that determines, when the formatted alternative area determination part determines that an alternative area exists on which the format process is performed, whether an alternative field allowing replacement exists in the alternative area on which the format process is performed,

wherein, when the second usable field determination part determines that an alternative field allowing replacement does not exist, the second alternative field assigning part assigns, as an alternative field for the defect field, a predetermined field in an alternative area on which the format process is not performed.

10. (Currently Amended) An information recording/reproducing apparatus that performs recording and reproducing of information with respect to a recording medium having a plurality of user data areas for recording user data therein and a plurality of alternative areas corresponding to the respective user data areas and each having an alternative field for replacing a defect field in the user data areas, said apparatus comprising:

an alternative area format process part that performs a format process on the alternative areas separately from the user data areas;

a defect field detection part that detects a defect field existing in the alternative area at the time of the format process by said alternative area format process part; and

a use prohibition part that prohibits, when the defect field is detected by said defect field detection part, using the defect field as the alternative field,

wherein each user data area is preceded by a corresponding adjacent alternative area.

11. (Currently Amended) An information recording/reproducing apparatus that performs recording and reproducing of information with respect to a recording medium having a plurality of user data areas for recording user data therein and a plurality of alternative areas corresponding to the respective user data areas and each having an alternative field for replacing a defect field in the user data areas, said apparatus comprising:

an error detection part that detects an error that occurs at the time of a format process;

a usable field determination part that determines whether a field allowing replacement exists in the alternative area corresponding to the user data area in which the error detected by said error detection part occurs;

an error occurrence position information maintaining part that maintains, when said usable field determination part determines that the field allowing replacement does not exist, information relating to a position at which the error occurs; and

an alternative field assigning part that assigns, after the format process ends, an alternative field for replacing the defect field based on the information maintained by said error occurrence position information maintaining part,

wherein each user data area is preceded by a corresponding adjacent alternative area.

12. (Currently Amended) A machine-implemented program for causing a computer to carry out:

a procedure that performs recording and reproducing of information with respect to a recording medium having a plurality of user data areas for recording user data therein and a plurality of alternative areas corresponding to the respective user data areas and each having an alternative field for replacing a defect field in the user data areas;

a defect field detection procedure that detects the defect field at the time of recording of information or a format process;

a first usable field determination procedure that determines whether an alternative field allowing replacement exists in the alternative area corresponding to the user data area having the defect field detected in said defect field detection procedure; and

a first alternative field assigning procedure that assigns, when said first usable field determination procedure determines that the alternative field does not exist, an alternative field allowing replacement in another alternative area to which the format process is performed as an alternative field for the defect field,

wherein each user data area is preceded by a corresponding adjacent alternative area.

13. (Currently Amended) A machine-implemented program for causing a computer to carry out:

a procedure that performs recording and reproducing of information with respect to a recording medium having a plurality of user data areas for recording user data therein and a plurality of alternative areas corresponding to the respective user data areas and each having an alternative field for replacing a defect field in the user data areas;

an alternative area format process procedure that performs a format process on the alternative areas separately from the user data areas;

a defect field detection procedure that detects, at the time of the format process in said alternative area format process procedure, a defect field existing in the alternative areas; and

a use prohibition procedure that prohibits, when the defect field is detected in said defect field detection procedure, use of the defect field as an alternative field,

wherein each user data area is preceded by a corresponding adjacent alternative area.

14. (Currently Amended) A machine-implemented program for causing a computer to carry out:

a procedure that performs recording and reproducing of information with respect to a recording medium having a plurality of user data areas for recording user data therein and a plurality of alternative areas corresponding to the respective user data and each having an alternative field for replacing a defect field in the user data areas;

an error detection procedure that detects an error that occurs at the time of a format process;

a usable field determination procedure that determines whether an alternative field allowing replacement exists in the alternative area corresponding to the user data area in which the error detected in said error detection procedure occurs;

an error occurrence position information maintaining procedure that maintains, when said usable field determination procedure determines that the alternative area does not exist, information relating to a position at which the error occurs; and

an alternative area assigning procedure that assigns, after the format process ends, an alternative field for replacing the defect field based on the information maintained in said error occurrence position information maintaining procedure,

wherein each user data area is preceded by a corresponding adjacent alternative area.

15. (Currently Amended) A computer-readable recording medium recording a program for causing a computer to carry out[[:]]:

a procedure that performs recording and reproducing of information with respect to a recording medium having a plurality of user data areas for recording user data therein and a plurality of alternative areas corresponding to the respective user data areas and each having an alternative field for replacing a defect field in the user data areas;

a defect field detection procedure that detects the defect field at the time of recording of information or a format process;

a first usable field determination procedure that determines whether an alternative field allowing replacement exists in the alternative area

corresponding to the user data area having the defect field detected in said defect field detection procedure; and

a first alternative field assigning procedure that assigns, when said first usable field determination procedure determines that the alternative field does not exist, an alternative field allowing replacement in another alternative area to which the format process is performed as an alternative field for the defect field,

wherein each user data area is preceded by a corresponding adjacent alternative area.

16. (Currently Amended) A computer-readable recording medium recording a program for causing a computer to carry out:

a procedure that performs recording and reproducing of information with respect to a recording medium having a plurality of user data areas for recording user data therein and a plurality of alternative areas corresponding to the respective user data areas and each having an alternative field for replacing a defect field in the user data areas;

an alternative area format process procedure that performs a format process on the alternative areas separately from the user data areas;

a defect field detection procedure that detects, at the time of the format process in said alternative area format process procedure, a defect field existing in the alternative areas; and

a use prohibition procedure that prohibits, when the defect field is detected in said defect field detection procedure, use of the defect field as an alternative field,

wherein each user data area is preceded by a corresponding adjacent alternative area.

17. (Currently Amended) A computer-readable recording medium recording a program for causing a computer to carry out:

a procedure that performs recording and reproducing of information with respect to a recording medium having a plurality of user data areas for recording user data therein and a plurality of alternative areas corresponding to the respective user data areas and each having an alternative field for replacing a defect field in the user data areas;

an error detection procedure that detects an error that occurs at the time of a format process;

a usable field determination procedure that determines whether an alternative field allowing replacement exists in the alternative area corresponding to the user data area in which the error detected in said error detection procedure occurs;

an error occurrence position information maintaining procedure that maintains, when said usable field determination procedure determines that the alternative area does not exist, information relating to a position at which the error occurs; and

an alternative area assigning procedure that assigns, after the format process ends, an alternative field for replacing the defect field based on the information maintained in said error occurrence position information maintaining procedure,

wherein each user data area is preceded by a corresponding adjacent alternative area.

18. (Currently Amended) A defect field management method of managing an alternative field with respect to a recording medium having a plurality of user data areas for recording user data therein and a plurality of alternative areas corresponding to the respective user data areas and each having an alternative field for replacing the defect field in the user data areas, said method comprising the steps of:

detecting the defect field at the time of recording of information or a format process;

determining whether an alternative field allowing replacement exists in the alternative area corresponding to the user data area having the detected defect field; and

assigning, when said step of determining determines that the alternative field allowing replacement does not exist, an alternative field allowing replacement in another alternative area on which the format process is performed as an alternative field for the defect field,

wherein each user data area is preceded by a corresponding adjacent alternative area.

19. (Currently Amended) A defect field management method of managing an alternative field with respect to a recording medium having a plurality of user data areas for recording user data therein and a plurality of alternative areas corresponding to the respective user data areas and each having an alternative field for replacing the defect field in the user data areas, said method comprising the steps of:

performing a format process on the alternative areas separately from the user data areas;

detecting, at the time of the format process in said step of performing the format process, a defect field existing in the alternative areas; and

prohibiting use of the detected defect field as the alternative field,

wherein each user data area is preceded by a corresponding adjacent alternative area.

20. (Currently Amended) A defect field management method of managing an alternative field with respect to a recording medium having a plurality of user data areas for recording user data therein and a plurality of alternative areas corresponding to the respective user data areas and each having an alternative field for replacing the defect field in the user data areas, said method comprising the steps of:

detecting an error that occurs at the time of a format process;

determining whether an alternative field allowing replacement exists in the alternative area corresponding to the user data area in which the detected error occurs;

maintaining, when the step of determining determines that the alternative field allowing replacement does not exist, information relating to a position at which the error occurs; and

assigning, after the format process ends, an alternative field for replacing the defect field based on the information maintained in the step of maintaining the information,

wherein each user data area is preceded by a corresponding adjacent alternative area.